Claims

We claim:

1. A lift belt comprising:

an elastomeric body having a width w and a thickness t and having a pulley engaging surface;

the elastomeric body having an aspect ratio w/t that is greater than 1;

a tensile cord contained within the elastomeric body and extending longitudinally;

the pulley engaging surface having a ribbed profile; and

the ribbed profile having a rib with an angle of approximately 90°.

2. The lift belt as in claim 1, wherein the tensile cord comprises a conductive material having a resistance.

3. The lift belt as in claim 2, wherein the resistance of the tensile cord varies to indicate a lifting belt load.

4. The lift belt as in claim 1 comprising a plurality of ribs.

5. The lift belt as in claim 4 having an end.

6. The lift belt as in claim 3 comprising a plurality of tensile cords.

7. The lift belt as in claim 3 further comprising:
a jacket on a surface opposite the pulley engaging surface.

8. The lift belt as in claim 7, wherein the jacket comprises nylon.

9. The lift belt as in claim 8 wherein a tensile cord comprises a metallic material.

10. The lift belt as in claim 9 wherein a tensile cord comprises steel.

11. The lift belt as in claim 1 further comprising:
an electrical circuit connected to a tensile cord for measuring a tensile cord load.

12. The lift belt as in claim 1 further comprising:
an electrical circuit for detecting a tensile cord failure.

13. An elevator lift system comprising:
a belt having an elastomeric body having a width w and a thickness t and having a pulley engaging surface;
the elastomeric body having an aspect ratio w/t that is greater than 1;
a tensile cord contained within the elastomeric body and extending longitudinally;
the pulley engaging surface having a ribbed profile;

the ribbed profile having a rib with an angle of approximately 90°; and

at least one pulley having a ribbed profile engaged with the pulley engaging surface.

14. The lift system as in claim 13, wherein the tensile cord comprises a conductive material having a resistance.

15. The lift system as in claim 14, wherein the resistance of the tensile cord varies according to a lifting belt load.

16. The lift system as in claim 13, wherein the pulley engaging surface comprises a plurality of ribs.

17. The lift system as in claim 16, wherein the belt has an end.

18. The lift system as in claim 15 comprising a plurality of tensile cords.

19. The lift system as in claim 15 further comprising:

a jacket on a surface opposite the pulley engaging surface.

20. The lift system as in claim 19, wherein the jacket comprises nylon.

21. The lift system as in claim 18 wherein a tensile cord comprises a metallic material.

22. The lift system as in claim 21 wherein a tensile cord comprises steel.

23. The lift system as in claim 13 further comprising:
an electrical circuit connected to a tensile cord for measuring a tensile cord load.

24. The lift system as in claim 13 further comprising:
an electrical circuit for detecting a tensile cord failure.

25. The lift belt as in claim 1 further comprising fibers extending from the pulley engaging surface.

26. A lift system comprising:
a belt having an elastomeric body having a width w and a thickness t and having a pulley engaging surface;
the elastomeric body having an aspect ratio w/t that is greater than 1;
a tensile cord contained within the elastomeric body and extending longitudinally;
the pulley engaging surface having a ribbed profile;
the ribbed profile having a rib with an angle of approximately 90°;
at least one pulley having a ribbed profile engaged with the pulley engaging surface; and
an electric circuit for detecting a tensile cord load and for controlling operation of the system.

27. A method of operating a lift system comprising the steps of:

training a tensile cord over a pulley between a motor and a load;

measuring an electrical resistance of the tensile cord; and

controlling an operation of the motor according to the electrical resistance.

28. A lift belt comprising:

an elastomeric body having a width w and a thickness t and having a pulley engaging surface;

the elastomeric body having an aspect ratio w/t that is greater than 1;

a tensile cord contained within the elastomeric body and extending longitudinally;

the pulley engaging surface having a ribbed profile; and

the ribbed profile having a rib with a rib angle.

29. The lift belt as in claim 28, wherein the tensile cord comprises a conductive material having a resistance.

30. The lift belt as in claim 29, wherein the resistance of the tensile cord varies to indicate a lifting belt load.

31. The lift belt as in claim 28, wherein the rib angle is in the range of approximately 60° to 120°.

32. The lift belt as in claim 28, wherein the rib angle is approximately 90°.